

INLAND WATERWAYS

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OHIO STATE UNIVERSITY.

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*Cincinnati.*













# Inland Waterways

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Report of Committee  
on Waterways



CITY CLUB, CINCINNATI

July, 1909



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# Inland Waterways

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CITY CLUB

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## Report of Committee on Waterways

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CINCINNATI

JULY, 1909



MAP OF NATURAL AND ARTIFICIAL WATERWAYS  
EXISTING AND PROJECTED



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# Report of Committee on Waterways

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CINCINNATI, OHIO, July 1, 1909.

THE CITY CLUB,

Cincinnati, Ohio.

Your Committee on Waterways begs leave to submit its report touching the general subject of waterways, in which there will be found a statement as to what is being done by the general Government in the matter of the construction and improvement of waterways, what the status of the improvement of the Ohio River is, and a general history of the Miami and Erie Canal, together with plans, which are maturing, for its enlargement to a barge or ship canal.

## WATERWAYS ABROAD.

"The waterway systems of France and Germany are developed and developing on the basis of about one mile of waterway to each twenty-five miles of territory, while Holland and Belgium have a mile of waterway to each six or eight miles of territory."

The canals in the Prussian Kingdom belong to the Government, and are managed by the Ministry of Public Works. They are constructed entirely for the benefit of the people, and have never been an object of speculation. Traffic on them is immense. They are administered with great care and best possible pecuniary advantage to the Government. In Germany the canals, aside from the Kaiser Wilhelm, are 15,011 miles in length, and the canalized rivers 1,452 miles. In France the length of the canals in operation is 3,021 miles. During the period of greatest activity in railway construction France has doubled the mileage of her navigable streams and multiplied the length of her canals by nearly four and one-half. In the United Kingdom the length of the canals belonging to railways is more

than 1,139 miles, and those that do not belong to railways 2,768 miles. Traffic in 1898 over the canals owned by railways in the United Kingdom was over 6,000,000 tons, and over those not belonging to railways more than 33,000,000 tons. These figures do not include over 100,000,000 tons carried on the Manchester Ship Canal. In China the Grand Canal has existed in about its present shape since Columbus discovered America. It is about 1,000 miles long and much of it is banked with stone. As it is, the canal handles practically all the internal trade of China, and this trade is far greater than its foreign trade. It is said that a little money will make China's canal system in the future what it has always been in the past — the greatest on earth.

These are but examples of what is being done in the promotion of waterway improvement abroad and serve to illustrate in what high regard this means of transportation is held by progressive nations.

#### GOVERNMENT BOND ISSUE FOR WATERWAYS.

The largest and most enthusiastic convention of the National Rivers and Harbors Congress in its history was held in Washington on December 9th, 10th and 11th of last year. At it speakers, representing all classes in official, commercial, business and industrial life addressed the Congress, all being earnestly in favor of a comprehensive system for the improvement of all kinds of waterways. A resolution was adopted, declaring it to be the opinion of the Congress that the United States should issue \$500,000,000 worth of bonds, to be sold from time to time in such quantities as may be necessary, for the improvement of waterways. In accordance with the authority delegated by that convention to carry out the above resolution, a committee, consisting of Representatives J. Hampton Moore, of Pennsylvania; Swager Sherley, of Kentucky; Richard Bartholdt, of Missouri, and J. E. Ransdell, of Louisiana, introduced a bill (H. R. 27151), authorizing the Secretary of the Treasury "to borrow on the credit of the United States, from time to time, as the proceeds may be required, to defray expenditures hereafter to be authorized by Congress for waterway improvements in the United States and Territories (but such proceeds when received to be used only for the purpose of meeting such expenditures), the sum of \$500,000,000, or so much thereof as may be necessary, and not to exceed \$50,000,000 in any one fiscal year," etc.



President Roosevelt, in his message, transmitting to Congress the report of January 11, 1909, of the National Conservation Commission, said of the part of the report relating to inland waterways:

"I urge that the broad plan for the development of our waterways, recommended by the Inland Waterways Commission, be put in effect without delay. It provides for a comprehensive system of waterway improvement, extending to all the uses of the waters and benefits to be derived from their control, including navigation, the development of power, the extension of irrigation, the drainage of swamp and overflow lands, the prevention of soil wash, and the purification of streams for water supply."

\* \* \* \* \*

"The work of waterway development should be undertaken without delay. Meritorious projects in known conformity with the general outlines of any comprehensive plan should proceed at once. The cost of the whole work should be met by direct appropriation if possible, but if necessary by the issue of bonds in small denominations."

In opening the National Rivers and Harbors Congress, at Washington, in October, 1907, Secretary Root said:

"The railroads of the country no longer are able physically to carry the traffic of America, and the one avenue open to such traffic is water transportation. We must move forward, or we will go backward."

In the report of the National Conservation Commission, herein referred to, is the following:

"It is now recognized by statesmen and experts that navigation is interdependent with other uses of the streams; that each stream is essentially a unit from its source to the sea; and that the benefits of a comprehensive system of waterway improvement will extend to all the people in the several sections and States of the country.

"It is also recognized, through the unanimous declaration of the Governors of the States and Territories adopted in conference with the leading jurists and statesmen and experts of the country, that in the use of the natural resources the independent States are interdependent, and bound together by ties of mutual benefits, responsibilities, and duties."

### THE GREAT CENTRAL WATERWAY.

A resolution was introduced at the last session of Congress, known as "House Concurrent Resolution, No. 18," directing the Secretary of War to cause surveys to be made for a ship

canal, commencing at Toledo, Ohio, running thence to Fort Wayne, Ind.; thence to Lake Michigan at or near Chicago, Ill. In April, 1908, there was a hearing on this resolution by the Committee on Railways and Canals, which committee reported favorably upon the bill, and it was put upon the calendar of the House, but was reached too late in the session for consideration. This deep waterway, or ship canal, is to follow the line of the Miami and Erie Canal from Toledo as far as Defiance, thence to Fort Wayne and Chicago. The completion of these improvements, with the enlargement of the Miami and Erie Canal, will make what has been called the "Great Central Waterway System," for within one hundred miles of the Miami and Erie Canal, at Columbus, Ind., is the center of population of the United States, and within one hundred miles of the same canal is the center of manufacturing of the United States, a point southwest of the City of Mansfield, Ohio. It will connect Lakes Michigan and Erie, and vessels will be able to save hundreds of miles of navigation, and avoid the storms of the lakes, the perilous passage of the Straits of Mackinaw, and will leave navigation "open" for at least six weeks longer during the year than by the present route by the Straits, and Chicago will be connected with Cincinnati by a barge canal by way of Defiance, 367 miles long, only 67 miles longer than by rail.

Government Engineers say, in their report of January 20, 1896, as regards what we now term the "Great Central Waterway System:" "A consideration of importance in favor of the route (the Miami and Erie Canal) arises from its relation to the old Wabash and Erie route, and particularly to the project advanced many years ago, and lately being brought forward again, to connect the west end of Lake Erie with the southern end of Lake Michigan. The junction of this route with the Miami and Erie Canal is a little south of Defiance, in the Maumee Valley. Whatever doubt may exist as to its value as against the Lake route between Chicago and Lake Erie points, there can be no doubt that, as part of the route from the Ohio River to the southern end of Lake Michigan, it may yet be of much importance. For instance, coal en route to Chicago would have the following advantage in time by the canal route over that by the lakes: From Defiance Junction to Chicago by way of Fort Wayne, there are 140 miles of canal, 420 feet of lockage, and 38 miles of lake, making an equivalent of 48.3 hours time. By way of Toledo the canal distance would be 64 miles, lockage 150



feet, lake distance 691 miles, and time 133.6 hours. The possible development of such a line is a point in favor of the Miami and Erie route, and in the present surveys the existing line through Defiance was for this reason adhered to, although a saving in distance of fifteen miles could be secured by cutting across the angle between the Auglaize and the Maumee Rivers."

The report in favor of the survey for the ship canal between Chicago and Toledo, made by the Committee on Railways and Canals of the House, was exhaustive, and the general agitation for the improvement in Northern Indiana and Ohio is so persistent and universal as to make it impossible for Congress to long withstand the pressure. The active promoters for the enlargement of the Miami and Erie Canal—the Miami and Erie Deep Waterway Association — are co-operating with the Chicago-Toledo-Cincinnati Deep Waterway Association, to the end that the "Great Central Waterway System" will before long be an accomplished fact.

It is well known that the Ohio River is to be canalized to a minimum depth of nine feet. With this completed and an enlarged Miami and Erie Canal, it is a fair assumption that the deep waterway for barges navigable on the lakes as well as on the canal and the river, will be second in importance to no inland waterway in the world, except, possibly, the Grand Canal in China, which is one thousand miles long, and must of necessity prove of great commercial importance to Cincinnati and the whole State of Ohio, for reasons so obvious that to recite them would be an insult to even average intelligence.

A careful study of all conditions and of the map conclusively shows what an important part the Miami and Erie Canal must inevitably be of the future system of waterway improvement in the interior of our country.

The subject of the development of the interior waterways of the country, including the Mississippi River, the Ohio River and its tributaries, and the Miami and Erie Canal, is very ably treated in an editorial published in the *Cincinnati Enquirer*, June 14, 1909, as follows:

#### LAKES TO RIVERS.

The State of Ohio and its cities, and the communities along the Ohio River, and the general business interests of the Ohio Valley, must not look to the United States for every great and enormously expensive improvement in waterways that is to add to the making of the future greatness of the valley. While we are confident now of a nine-foot stage

of water for the whole Ohio River within a future not more than ten or fifteen years off, which is all the more assured because of the decision of the Engineering Department of the Army against the proposition to enlarge the Chicago drainage canal, accompanied by the statement that the most desirable of the improvements of western waters to put through is that of the Ohio Valley, the millions of our population within the territory most directly to be benefited should be up and doing toward some great collateral improvement like that proposed for the Miami and Erie Canal from Toledo or its vicinity to Cincinnati. This canal should be so widened and deepened that its waters shall convey from the Great Lakes to the river at Cincinnati barges of a draught of nine feet. The present line of the canal need not be greatly changed for this improved canal. By means of the modern methods of excavating this work can be done within a few years, if only the finances for the work are placed at the disposal of the engineers and contractors. Many millions of dollars, to be sure, will be required; but why not? Within the lives of many of us not yet passed exactly into the sere and yellow the Cincinnati Southern Railroad was a dream of the future. Cincinnati spent the eighteen or twenty millions required, and today is glad she did it, for she not only has the added business of it, but in the property an asset more valuable than any ever claimed by even the indomitable little man (physically) whose energy and persistence brought it about. No suggestion is made just now how this enterprise shall be started with a view to the means and the work as soon as possible. That is for the financial and business interests most intimately connected with such a possibility to work out. Possibly the General Assembly of Ohio may be called upon to pass the legislation necessary to divide the expense between State and certain cities of it. The general Government of the United States might take upon it a share of the expense for "military necessity."

The ENQUIRER's suggestions in this direction, made at considerable length a couple of years since and occasionally referred to by the press of Ohio, has taken root in many minds capable of grasping the advantages to the Ohio Valley of speedy transit by water for that portion of the traffic of the lake country that would quickly seek final market by the Ohio and Mississippi Rivers and the Gulf of Mexico. Ores and the products of ores are among the immense items that would be included in this passage. With nine feet of water the year around in the Ohio River and in the connecting canal between that river and the lakes there would come a grand change for the better upon the business methods of Cincinnati, upon its manufactures, with advance in its population and its whole appearance, as it would grow into a city with stone docks and quays, with its swampy Millcreek succeeded by fine basins of navigable



water. Proportionate to the increase of business manufactures and population along the river would be that of the length of the State along the present useless and unsightly canal. Towns would become cities and small cities greater ones.

If anything chimerical in this thought can be proved the ENQUIRER is ready to be convinced. Why should there be a thought in that direction? Great waterways are being constructed or have been already placed in operation as canals by countries, by cities and by private corporations in all countries where the energy of the white man has dominated events. Witness Suez, "Soo," Panama, Manchester, Massachusetts, New York and many other enterprises, not excepting that of Chicago, which completed its drainage canal and had the daring to ask the general Government to make it over into a ship canal. The project of the connection of Lakes Michigan and Huron at a vast expense is not dead. Manchester awoke to the necessity and spent \$85,000,000 for its connection with Liverpool by a canal thirty-five and a half miles long, with a lift above the sea of sixty and a half feet; with a width of from two hundred and ninety feet at the surface and one hundred and twenty feet minimum at the bottom. Over seventy vessels per day, ocean going, coasting and all, can pass the locks. Certainly, in these days of great things, with renewed prosperity promising, there is nothing visionary in this scheme of widening and deepening a canal the length of the State of Ohio, that billions of dollars may be added to the business of many States in a few years that shall follow the completion of the work.

As a most graphic and eloquent description of the interior of the country insofar as it relates to the question of waterway improvement, we set out the following excerpt from the paper of Mr. Lyman E. Cooley, read before the National Conservation Commission:

The interior can not go to the sea, but for all practical purposes the sea can be carried into the interior. The continental base lines can be developed for ships if we like, south to the Gulf, east to the Atlantic, and north to Hudson Bay, and each unit area, like France and Germany, will lie along a virtual sea front.

Great tributaries and the many laterals can be improved and connected at vantage points in loops and circuits, and the wealth in either valley slope may thus interchange and gravitate to the common artery.

The Mississippi Valley has some 25,000 miles of waters which have been actually navigated. On the basis of France and Germany, this should increase to 80,000 miles for the potential area. With such a waterway system 250,000 miles of railway should be sufficient to meet the

needs of a population of four hundred million to five hundred million in the Mississippi Valley. The greater efficiency of American railways and the larger scale of a waterway system will discount any superior activities of our people.

Considered as a matter of cost, the combined system will be far less, and considered in relation to results, the wealth to pay for the same will be far greater.

The typical American of the generations to come will express the environment, the boundless opportunity and dominion over nature in the Mississippi Valley. This interior is the assembly ground of all the divers types of the Aryan race that swarmed from the parent stock in Central Asia thousands of years ago. Coming through varied lands with widely varying climatic and soil conditions, strange experiences and multiplied heredities, they are to here coalesce in the final race type.

Here the genius of the race may flower and mature its fullest fruits, secure behind broad margins of ocean boundary from the alien-race wars which rolled our ancestors up like a scroll. Here may develop a civilization such as the world has not seen and issue forth through its ocean portals to dominate the world.

#### NATIONAL WATERWAYS COMMISSION.

The Commission provided for in the Rivers and Harbors Bill, known as the National Waterways Commission, composed of five Senators and seven members of the House, of which Senator Burton is Chairman, will make a thorough examination of the Miami and Erie Canal and its possibilities.

#### GOVERNMENT SURVEY OF MIAMI AND ERIE CANAL.

General J. Warren Keifer, at the present session of Congress, introduced a bill, carrying an appropriation of \$25,000, to be expended under the auspices of the Secretary of War, for making a survey of this canal, with a view of ascertaining whether or not it is possible to convert it into a barge or ship canal. His bill has been referred to the Committee on Rivers and Harbors of the House, and awaits, in the near future, a hearing.

General Keifer, in a remarkably eloquent and exhaustive speech, made in support of his bill, in the House of Representatives, on February 2, 1909, said:

"The interior of our country is now much like an unhatched egg, ready to burst its shell, needing only vigor to do so. The ship canal I advocate will become an artery for the circulation of the now stagnated busi-



ness life of the Nation, and it will contribute largely to that vigor essential to its early bursting forth and to giving a new prosperity and a full-fledged life to our constitutional union of States, and I implore Congress to act speedily in favor of the most central project, and, I believe, the most important waterway improvement yet suggested, and this I do in the name of the one hundred million of our people whose interests and prosperity would be promoted thereby." (Loud applause.)

## NATIONAL WATERWAY IMPROVEMENT.

What could more conclusively show the *national* interest in the subject of the improvement of waterways than the action of the National Rivers and Harbors Congress, the appointment of the Commission we have referred to, the introduction of the bill for borrowing this huge sum of money for such improvements, the annual appropriation of millions for maintenance and enlargement, the favorable report of the Committee on Railways and Canals of the bill for a survey of the canal between Toledo and Chicago, and the introduction of the bill of General Keifer for the appropriation of money for the survey of our Miami and Erie Canal?

THE GENERAL GOVERNMENT IS COMMITTED TO INTERIOR WATERWAY IMPROVEMENTS ON A SCALE COMMENSURATE WITH THE DEMANDS OF COMMERCE.

## NEW YORK — ERIE CANAL.

The State of New York, but a few years since (1903), by an overwhelming majority of the people, voted an appropriation of \$101,000,000 to enlarge the Erie Canal from a depth of seven feet to a depth of twelve feet, and this work of enlargement is rapidly progressing. The Erie Canal connects the Great Lakes at Buffalo with the Hudson River, second in importance as a water highway of the country, at Albany. It is 387 miles long, and has seventy-two locks, and was commenced in 1817.

In 1825, the year the Erie Canal was opened, the movement of persons passing Utica in freight and packet boats during the season was over 40,000. At that time the railroads were not extensively in operation, and travel by canal boat offered advantages greater than those provided today. Notwithstanding this, in 1906, the number of passengers taken from one point to another on the canal was 36,120.

## LAKE MICHIGAN — MISSISSIPPI RIVER SHIP CANAL.

It is well known that work is rapidly progressing, at great expense, in the construction of a ship canal between Lake Michigan and the Mississippi River.

### OHIO RIVER.

The campaign for the improvement of the Ohio River, so far as securing the necessary survey goes, has been triumphant, and it is now up to the representatives in Congress of the millions of people in the Ohio Valley to secure from Congress the necessary appropriations for the improvement of the river — the estimated cost of which is \$50,000,000, in addition to amounts already appropriated. From the mouth of the Great Miami River to Pittsburg it has been ascertained that thirty-seven locks and dams would be required, of which number thirteen have been completed, or are now under construction, while the construction of the remaining twenty-four is yet to be authorized.

By act of Congress, the Secretary of War was authorized to appoint a Commission of Engineers to carefully investigate and report upon the feasibility of a nine-foot stage in the Ohio River from Pittsburg to Cairo. The Commission appointed by the Secretary of War prosecuted its task with vigor, intelligence and minuteness. The Commission's report was submitted to a standing Board of Revision, who, after subjecting it to most careful examination, approved it, and the report of the Board of Revision has been in turn approved by the Secretary of War and transmitted to Congress for action.

Mr. Albert Bettinger, a member of the Canal Committee of the City Club, in a report made by that Committee some time ago, contributed to the report that part of it which referred to the canalization of the Ohio River, and showed the great direct and indirect benefits of the improvement, and concluded:

"But we should not stop here. The Great Lakes System, soon to be connected with New York Harbor by the new 1000-ton barge canal, should be connected with the Ohio River System by a reconstruction and enlargement of the Miami and Erie Canal from Toledo to Cincinnati. Thus would Cincinnati have an easy water outlet to the Atlantic Coast (via M. & E. Canal, Lake Erie and Erie Canal), and another to the Gulf Coast, in addition to the most complete inland waterway system that can be found anywhere in the world."

# DISTANCES VIA OHIO AND MISSISSIPPI RIVER FROM CINCINNATI.

UP MILES		DOWN MILES	
Maysville .....	61	Henderson .....	327
Ironton .....	142	Mt. Vernon .....	353
Ashland .....	147	Shawneetown .....	381
Huntington .....	160	Elizabethtown .....	410
Gallipolis .....	199	Paducah .....	453
Middleport - Pomeroy.....	219	Metropolis .....	463
Parkersburg .....	283	Mound City .....	492
Marietta .....	296	Cairo .....	498
Sistersville .....	329	(Pittsburg to Mississippi River, 966 miles.)	
New Martinsville .....	339	Memphis .....	616
Bellaire .....	373	Helena .....	842
Wheeling .....	377	Arkansas City .....	983
Wellsburg .....	393	Vicksburg .....	1,162
Steubenville .....	399	Natchez .....	1,266
Wellsville .....	419	New Orleans .....	1,552
East Liverpool .....	423	(Pittsburg to New Orleans, 2,019 miles.)	
Pittsburg .....	467		
DOWN MILES		DISTANCE FROM PITTSBURG	
Lawrenceburg .....	22	Dam No. 1 (Davis' Island Dam) ..	4½
Aurora .....	26	Dam No. 2.....	9¼
Rising Sun .....	35	Dam No. 3.....	10¾
Warsaw .....	57	Dam No. 4.....	18½
Vevay .....	66	Dam No. 5.....	24
Carrollton .....	74	Dam No. 6.....	29½
Madison .....	86	Dam No. 7 (under construction) ..	36½
Louisville .....	131	Dam No. 8 " " ..	46
New Albany .....	136	Dam No. 11 " " ..	77
Brandenburg .....	173	Dam No. 13 " " ..	96
Hawesville .....	250	Dam No. 18 " " ..	178½
Rockport .....	273	Dam No. 19 " " ..	191
Owensboro .....	282	Dam No. 37 " " ..	480
Evansville .....	316		

“TRANSPORTATION IS THE QUESTION OF THE HOUR.”

—Wm. H. Taft.

No subject is of greater importance to this country in a business or commercial sense than the improvement of its interior waterways, natural and artificial. President Taft, in an address before the Convention of the Lakes-to-the-Gulf Deep Waterway Association (October 21, 1908), among other things said:

My own judgment is that every improvement like that of the Lakes-to-the-Gulf, like that of the Ohio River, like the Atlantic Seaboard Inland Waterways, should be treated by itself as one great enterprise, just as we have treated the Panama Canal, and that provision should be made by bonds or otherwise for the setting aside of a fund sufficient to complete it as rapidly as possible.



Andrew Carnegie, in an address before the Rivers and Harbors Congress (December 9, 1908), said:

It has been proved, and it needs no more proof, no more contest; we are as certain as that the sun shall shine tomorrow that the improvement of our waterways will give back to this country tenfold the expenditure.

The highest railway authorities unite in saying that the railways of the country find it impossible to supply the demands made upon them for the transportation of our ever-increasing commerce, and they are publicly and privately advocating the improvement of waterways to assist them in the movement of freight.

We of Cincinnati are more directly interested in the improvement, according to approved plans, of the Ohio River, and the possible converting of the Miami and Erie Canal into a barge or ship canal to connect the Great Lakes with the canalized Ohio River.

#### THE MIAMI AND ERIE CANAL.

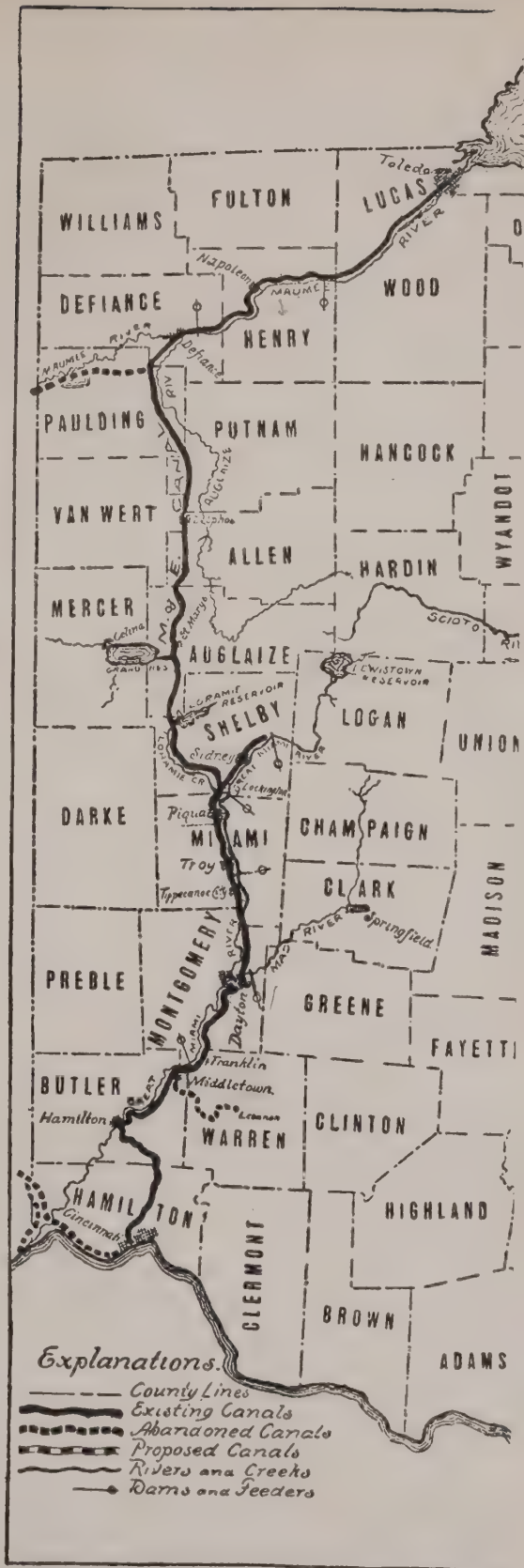
By act of the Legislature of Ohio, of date of March 14, 1849, the three canals, previously known as the "Miami and Erie Canal," the "Miami Extension Canal" and the "Wabash and Erie Canal" became known as the "Miami and Erie Canal."

These canals were begun and completed as follows: Miami Canal, Dayton to Cincinnati, commenced 1825, completed 1828; Miami Extension Canal, Dayton to Junction, commenced in 1833, completed 1845; Wabash and Erie Canal, Junction to Toledo, commenced 1837, completed 1842.

Since your Canal Committee made its last report much has been done toward forwarding the project of enlarging the Miami and Erie Canal to such proportions as will make it a real factor in transportation. The people have had apparently so little information touching the undoubted value of an enlarged canal in its direct and indirect benefits to the State and the country at large, and of even its present value if it were dredged to the standard depth of five feet, and of the history of the canal and its value as an asset to the State, and what it has accomplished for the State in the past, that there was organized, something over a year since, what is known as the Miami and Erie Deep Waterway Association, which has undertaken a campaign of education upon these subjects, the result of which is that practically every commercial and civic organization, the public press and the people between Cincinnati and Toledo have but one

# DISTANCES

NAMES OF PLACES	Miami and Erie Canal—Main Line	
	From Cincinnati	From Toledo
Cincinnati.....	0	244
Carthage.....	10	234
Lockland.....	12	232
Port Union.....	21	223
Hamilton.....	28½	215½
LeSoudsville.....	36	208
Amanda.....	39	205
Middletown.....	42	202
Franklin.....	48	196
Miamisburg.....	54	190
Carrollton.....	57	187
Dayton.....	66	178
Miami Aqueduct.....	74	170
Tippecanoe.....	81	163
Feeder Lock.....	84	160
Troy.....	87	157
Farrington's Distillery	93	151
Piqua.....	95	149
Sidney Feeder.....	100	144
Loramie Reservoir F'r.....	118	126
Minster.....	120	124
Bremen.....	123	121
Mercer Co. Res. F.....	130	114
St. Mary's.....	131	113
Kossuth.....	140½	103½
Spencerville.....	143	101
Delphos.....	154	90
Hamer.....	164	80
Junction.....	180	64
Defiance.....	189	55
Independence.....	192	52
Florida.....	198	46
Napoleon.....	206	38
Damascus.....	213	31
Texas.....	216	28
Providence.....	220	24
Waterville.....	231	13
Maumee Side Cut.....	235	9
Maumee City.....	236	8
Toledo.....	244	0



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## MAP OF MIAMI AND ERIE CANAL

DRAWN FROM MAP AND DATA PREPARED BY CAPT. HIRAM M. CHITTENDEN, CORPS OF ENGINEERS, U. S. A.

opinion, which is that it is of highest importance, in both a local and a general sense, that the Miami and Erie Canal must be converted into the largest possible barge or ship canal to connect the Great Lakes — first in importance, in waterway transportation — and the Ohio River, third in importance, in the United States — and that considering the possibility of such enlargement, and until a careful survey and scrutiny has been made by competent engineers, no abandonment, or even impairment, of any part of the canal should be tolerated. The Government Engineers, in their report of the canal survey, said:

“If the State abandons the canals, and if the lines are occupied by railroads and the reservoir sites are sold, it will never again be possible to build a canal along any of the proposed routes (except possibly the central route, which now passes largely through new territory) for what it would cost now.”

We would not have it understood, however, that this public favor toward the canal is unanimous, for there are, and have been, those opposing it and everything connected with it, who are actuated by covert designs for personal advantage or profit, who would absolutely destroy or cripple it, but fortunately these persons and their selfish designs have become well known, and as they have from time to time been branded and beaten off, they have ceased to be respected, and their conduct is ever under strict surveillance, so that the danger of losing the possibility of this great public improvement, by their plots and schemes, is minimized. It is to be regretted that there are quite a number of honorable citizens, who either because of lack of knowledge touching the subject or because of apathy, have been wheedled or cajoled by the siren voices of wily promoters into at least an apparent alliance with them, but even these are coming to “beware of the Greeks bearing gifts,” for each effort to acquire the canal for other than its legitimate purpose has been upon the false pretense of public advantage.

Those who have been most active in maintaining and preserving the canal for its greater usefulness, freely confess that in its present physical condition and with its insufficient draft, it is inadequate as an aid to the ever-growing local and general commerce of the country.

#### STATE POLICY AS TO CANALS.

Both of the great political parties of Ohio have, for a number of years past, at their State Conventions, declared in favor of the maintenance and the improvement of the canals of the



State, and the Legislature has, by formal enactment (act of April 9, 1902), declared it to be the settled policy of the State to maintain the Miami and Erie Canal.

Your Committee feels it important to furnish some general information as to the history, the physical condition, and the present and future value of the canal as a facility for transportation between the Great Lakes and the Ohio River.

## HISTORY OF MIAMI AND ERIE CANAL.

About the time the State of Ohio was admitted to the Union, New York was considering the construction of the Erie Canal, the chief promoter of which was that great statesman, Governor DeWitt Clinton, of New York, a profound student of economic and practical industries, himself engaged in promoting canal construction in New York, and for a long time President of its Board of Canal Commissioners, and who once visited Ohio on a tour of inspection of her resources, who wrote, November 8, 1823, to Micajah T. Williams, one of Ohio's Canal Commissioners, a prophetic letter on the subject of the importance of connecting the waters of the Lakes and the Ohio River, and said in part:

"The projected canal between Lake Erie and the Ohio River will, in connection with the New York canals, form a navigable communication between the Bay of New York, the Gulf of Mexico, and the Gulf of St. Lawrence; of course, it will embrace within its influence the great part of the United States and of the Canadas. The advantages of a canal of this description are so obvious, so striking, so numerous, and so extensive that it is a work of supererogation to bring them into view. The State of Ohio, from the fertility of its soil, the benignity of its climate, and its geographical position, must always contain a dense population, and the products and consumptions of its inhabitants must forever form a lucrative and extensive inland trade, exciting the powers of productive industry and communicating aliment and energy to external commerce. But when we consider that this canal will open a way to the great rivers that fall into the Mississippi, that it will be felt, not only in the immense valley of that river, but as far West as the Rocky Mountains and the borders of Mexico, and that it will communicate with our great inland seas and their tributary rivers, with the ocean in various routes, and with the most productive regions of America, there can be no question respecting the blessings that it will produce, the riches that it will create, and the energies that it will call into activity."

\* \* \* \* \*

"Next to New York, Ohio will be the most populous State in the Union. She is susceptible of a population of twelve and one-half millions, contains 39,000 square miles, and has every facility for carrying the pursuits of productive activity to the highest pitch of improvement."

\* \* \* \* \*

"In one word, sir, all that is necessary to complete this great enterprise is the will to direct it. Considering, as I always have, that it is only a continuation of the Erie Canal, that it will promote corresponding advantages, and that it is identified with the stability of our Government and the prosperity of our country, I own that I feel a more than common solicitude on this subject."

Our Ohio forefathers, stimulated by the example of their sister State, and aided by the advice of Governor Clinton, began the agitation of connecting the lakes with the Ohio by canals, the first official act being Gov. E. A. Brown's inaugural message of December 14, 1818, urging the improvement, until finally, under the great disadvantages of a wild and unsettled country, its occupancy by Indians, slow methods of travel and lack of money, the State began its construction (speaking of the Miami and Erie Canal), July 21, 1825 (the act for internal improvements having been passed February 4, 1825), and finished it in sections, in about 1845. The following is taken from an old record:

"On the 20th of November, 1827, three fine boats, crowded with citizens, delighted with the novelty and the interest of the occasion, left the basin six miles north of Cincinnati and proceeded to Middletown with the most perfect success." Afterward the canal was completed to Dayton, and then by government aid from Dayton to Toledo.

Funds necessary for its construction were raised by private contribution, by county and municipal aid, and by lending the credit and security of the State to borrow money from John Jacob Astor and others, and by the sale of lands ceded to the State by the general Government.

The Government Engineers, in their report of February 12, 1896, say: "Under acts of Congress in 1827 and 1828, grants of land were made by the United States to Ohio and Indiana in aid of canals. The State of Ohio finally received 1,240,521.95 acres of land, from the sale of part of which the State has realized \$2,257,487.52, and there remain unsold lands valued at \$1,250,000. In consideration of these grants

the aided canals are public highways of the United States, over which its property and the persons in its service must be transported free of tolls." Of these lands 438,301.32 acres were sold for the purpose of constructing the canal between Dayton and Toledo.

In the course of its construction it was found necessary for the Legislature by act to memorialize Congress to intercede with the Indians, through whose lands it was desired to construct the canal, to permit the work to go on. Immediately upon its completion it became of immense value, directly and indirectly, to the State and to commerce generally, and this continued, notwithstanding the advent of railroad competition and the disastrous policy of leasing it (in common with the other canals) to private parties, until the blight put upon it by the proprietors and the promoters of what has come to be known as the "electric mule," which has done everything possible to prevent navigation of the canal or its improvement.

The Constitution of the State of Ohio provides that so long as the State shall have public works, there shall be a Board of Public Works, by virtue of which there was created a Board of three members, known as the Board of Public Works, which Board has charge and supreme control, subject to legislative direction, of all of the public works (the canals) in the State which are owned in fee simple by the State. It may be that the system which has been in vogue for so many years for the management of the canals is obsolete, and should be reorganized, and a new one adopted, but these are questions which we do not care here to discuss.

The Ohio canals were administered from 1825 to 1835 by Canal Commissioners; from 1836 to 1837 by a Board of Public Works; in 1838 by a Board of Canal Commissioners; from 1835 to present time by a Board of Public Works. The Miami and Erie Canal in about 1850 had 301.49 miles of canals and feeders.

#### COMPARATIVE WEALTH OF CANAL AND NON-CANAL COUNTIES IN OHIO.

There are thirty-seven canal and fifty-one non-canal counties in Ohio. In 1900 the assessed value of real estate in the canal counties was \$371,434,173 more than in the non-canal counties, and there was in the canal counties \$101,948,053 more personal property listed for taxation than in the non-



canal counties, or a total of real and personal property in the canal counties of \$473,382,226 more than in the non-canal counties.

### DIRECT BENEFITS TO COUNTRY TRAVERSED BY MIAMI AND ERIE CANAL.

No sooner had the canal been constructed than hundreds of manufacturing concerns were established on its banks because of the facilities offered for transportation and because of the use of its surplus waters for manufacturing and power. These manufacturing centers have become rich and prosperous cities and villages, until now, the proportion of population of these counties (1900, 1,094,733) to the population of the entire State (4,157,545) is 26 per cent.

This canal passes through fifteen of the eighty-eight counties of the State—17 per cent. The average number of employes engaged in manufacturing in the whole State is 345,869, 37 per cent of which are engaged in these counties. The wages earned by the wage-earners in the whole State amount to \$153,955,330, 35 per cent of which wages are earned in these counties. The capital invested in manufacturing in the whole State amounts to \$605,792,266, 31 per cent of which is engaged in these counties. The value of the products of manufacturing in the whole State is \$832,438,113, 37 per cent of which are produced in these counties. The estimated true value of real property and improvements in the whole State is \$2,918,961,315, 34 per cent of which is located in these counties. (The above percentages are based upon the United States Census of 1900.)

The paper mills in these fifteen counties, principally between Cincinnati and Dayton, have a daily production of paper of over 2,000,000 pounds; their daily consumption of fuel is over 2,500,000 pounds, and their daily consumption of raw material is over 3,500,000 pounds, or a total daily tonnage—the natural freight for a canal—of over 8,000,000 pounds. The annual tonnage of these paper industries is 1,200,000 tons.

In manufacturing, Cincinnati stands first, Dayton third, and Toledo fourth in the State of Ohio. This canal passes through these cities. In population, Cincinnati stands second, Toledo third, and Dayton fourth. This canal passes through these cities.

## ORIGINAL COST OF MIAMI AND ERIE CANAL AND RESERVOIRS.

The Miami and Erie Canal, including reservoirs, cost the State, for original construction, \$8,062,680.80. Exclusive of the Sidney navigable feeder and reservoir system, the cost was \$5,920,200.41. The following reservoirs belong to this canal:

RESERVOIRS.	COST.	AREA IN ACRES.	MEAN DEPTH FEET.	CAPACITY IN MILLION CUBIC FEET.
St. Mary's, Mercer County..	\$528,227.07	13,440	7.6	4,500
Lewiston, Logan County....	600,000.00	6,022	7.5	2,000
Loramie, Shelby County....	22,000.00	2,464	6.	600

Major Chittenden, one of the Government Engineers referred to, reported with reference to an additional reservoir to supply the Miami and Erie Canal, when enlarged:

"In the Valley of the Great Miami, above Port Jefferson, it is proposed to build a new reservoir. The site is one of the most advantageous in the State. The valley is inclosed by banks of sufficient height to retain the water within a narrow area, although the length of the reservoir will be more than twenty miles. The dam will be forty feet in height, and in construction similar to that of the other reservoir dams. This reservoir would be 4,579 acres in extent, 15.1 feet deep, and have a capacity of 3,000 million cubic feet."

The report of the Government engineers, under the act of Congress, August 17, 1894, made on February 12, 1896, was, after a survey had been made to ascertain, pursuant to the terms of said act, the feasibility and advisability of improving by widening this canal to a width of seventy feet at the water line and deepening it to a depth of seven feet. The engineers estimated that the total cost of enlarging the canal to these dimensions would be \$23,011,374. They estimated that the canal could be enlarged to a depth of ten feet at a cost not to exceed \$27,000,000. Modern methods would greatly reduce this estimate.

## APPROXIMATE PRESENT VALUE OF MIAMI AND ERIE CANAL.

The present value of the Miami and Erie Canal is a matter of conjecture. If it were to be considered as a right of way for a railway company, it would certainly be worth many mil-

lions of dollars; if considered as a right of way for a barge or ship canal, it must certainly be worth as much, if not more; if considered as a naked real-estate proposition, in which light it is not apt to be viewed, its value would be very great indeed, in view of the fact that some years ago a competent real-estate expert made a careful appraisalment of the canal lands in the City of Cincinnati, considered strictly as a real-estate proposition, and placed their value at \$1,032,000.

#### RECEIPTS AND EXPENDITURES MIAMI AND ERIE CANAL.

The net earnings of all the canals of the State, to February, 1909, over expenditures, for maintenance, operation and improvements, is \$2,805,407.84.

The total receipts on the Miami and Erie Canal, from 1827 to 1907, both inclusive, were \$7,321,018.50. The expenditures for superintendence, repairs and costs of collection, etc., on the Miami and Erie Canal, from 1827 to 1907, both inclusive, were \$6,156,325.66, leaving a net gain on the Miami and Erie Canal to the State of \$1,164,692.84.

The receipts and expenditures on the Miami and Erie Canal from Cincinnati to Dayton, from 1894 to 1901, both inclusive, showed each year a gain over expenditures, but in 1902, the year of the advent of the "electric mule," the loss was \$9,879.84, and in 1903, \$17,106.38, but, notwithstanding these losses between 1894 and 1903, the excess of receipts over expenditures was \$47,277.38. These figures conclusively show the benefits and advantages of this canal as a revenue producer from its construction until now, and, considering railroad competition (which commenced in 1839), and the leasing of it by the act of 1861 for ten years, and the disastrous results to the canal by the "electric-mule" experiment, the showing, we submit, is a rather remarkable one, but of far greater importance than the mere matter of revenue to the State is the inestimable value this canal has been directly to the State and indirectly to the country in a commercial sense.

It has been found by the Government and the State of New York that the direct and indirect benefits derived from the construction, maintenance and improvement of waterways are of so much more importance than the revenues from tolls, etc., that tolls have been abolished. This is doubtless founded upon the same theory which has brought about the abolition of tolls for the use of roads and highways in many of the States.



In the Rivers and Harbors Bill, passed March 3, 1909, it is provided at Section 4, "That no tolls or operating charges whatever shall be levied upon or collected from any vessel, dredge, or other water craft for passing through any lock, canal, canalized river, or other work for the use and benefit of navigation, now belonging to the United States, or that may be hereafter acquired or constructed."

#### USE OF SURPLUS WATERS IN MANUFACTURING.

One of the great incidental advantages to the people by waterways is the use of surplus water for power and in manufacturing. It was one of the original thoughts of the promoters of the construction of the Miami and Erie Canal that it would be able to supply such power and use in manufacturing, and but recently President Roosevelt has called attention to the great waste of water power throughout the country, and in the Rivers and Harbors Bill, recently passed, there are frequent allusions to the use of the surplus water for power and manufacturing.

Those who have had contracts with the State for the use of surplus water of the Miami and Erie Canal, in manufacturing and for power, who are naturally the friends of the canal, have been slightly and insultingly referred to by unthinking people and by those hostile to the canals as "water grafters." These charges are unfounded and unjust, because all such contracts, or water leases, have been secured lawfully from the Board of Public Works, and are such as can be now secured by any citizen, and the rates for the use of water for manufacturing and power have been fixed by lawful authority. The revenue to the State from present water-right leases on the Miami and Erie Canal amounts now to approximately \$32,000 annually, the greater part of which is derived from the canal between Dayton and Cincinnati.

#### FISH CULTURE.

An eminent authority says that "the reservoirs have a high value for fish culture, and that the present yield brings about \$15.00 an acre to the fisherman, while the consumer pays double, and with proper care, with laws to protect, it is not too much to expect that the yield could be increased to a value

of from \$25.00 to \$30.00 per acre, or in the case of the reservoirs connected with the Miami and Erie Canal, between \$600,000 and \$700,000 per year, and that the policy of improvement by the State should carefully guard this source of wealth for its citizens."

## PHYSICAL STRUCTURE OF MIAMI AND ERIE CANAL.

The total length of this canal, from the head of the Maumee Bay to the Ohio River is 244 miles. Its minimum breadth at the water line, from Cincinnati to Dayton, is forty feet, at the bottom twenty-six feet, and the depth four feet; from Dayton to Junction, breadth at water line fifty feet, at bottom thirty-six feet, and depth five feet; from Junction to Toledo, width at water line sixty feet, at bottom forty-six feet and depth six feet.

The minimum width of the tow-path is 15.68 feet, and of the berme-bank 12.12 feet.

It has a capacity for seventy-ton boats. When increased to a depth of five feet, which is now being done by available appropriations, it will have a capacity for 100-ton boats. The distance between the Maumee Bay to the north end of the summit level is 125 miles. The summit level is 24 miles long. The distance from the south end of the summit level to the Ohio River is 99 miles. The elevation of the water surface of the summit level (Loramie Summit, the only summit) above Lake Erie is 374 feet; the elevation of the water surface of the summit level above low water mark in the Ohio River is 516 feet — which makes necessary a total lockage of 890 feet. The number of locks on the north slope is forty-six, and the number on the south slope is fifty-two (in 1863 ten were cut off at Cincinnati), a total of ninety-eight locks. The canal originally connected with the Ohio River from its present terminus south, but this connection was abandoned in 1863. The side cuts, feeders, etc., connected with this canal, some of which were abandoned, were the Wabash and Erie Canal, from the Junction to the Indiana State line, eighteen miles; Sidney feeder, fourteen miles; Grand Reservoir, two miles; Loramie Feeder, one-half mile; Hamilton Sidecut, three-fourths mile; Middletown Feeder, one-half mile; Dayton Feeder, one-third mile; total, thirty-six miles. The Miami and Erie Canal has nineteen aqueducts.

The main streams of water supply for the canal are the Maumee, St. Marys and Auglaize Rivers and their tributary streams, and the Big Miami River with its branches and tributaries, including the Mad River at Dayton.

### MOTIVE POWER.

The motive power for the traction of canal boats has been animal power until the pretense made of propelling canal boats by electricity, by the "electric mule," which proved an utter failure, scientifically and practically. "The haulage was by electric locomotives ("electric mules") on a standard-gauge track laid along the tow-path, the center being about six feet from the water's edge, and the whole track about two feet above the water level, so as to avoid the wash. The locomotives were of the four-wheel mining type, and weighed about 55,000-pounds each, with a wheel base of seven feet. They were equipped with two 80-horse-power induction motors, with double reduction gears, and three self-cooling oil transformers. The current was supplied by the Cincinnati Gas and Electric Company. Three-phase, 60-cycle current, at 4,200 volts was transmitted over the transportation company's line of three overhead transmission wires to a station five miles distant, where there were three 150-kilowatt, 60-cycle oil-cooled transformers, including one in reserve. A generator at this station furnished the current to the Cincinnati section of the canal. The railway track was used for the return."

The Ohio Boat Company installed on eight of its steel hull boats a system of propulsion by gasoline engines of fifteen horse power, operating a propeller in a chamber in such fashion as to absolutely prevent the wash of the banks. This system of propulsion has been constantly used for several years, and has proved a decided success.

Leon Gerrard, electrical engineer, Past President of the Belgian Society of Electricians, gives an interesting description of a method of hauling by an electric tractor, running upon a single rail, which has been subjected to severe practical tests with great success. In connection with his description of this electrical tractor, or motor, he has published the following table, which is inserted as a matter of information upon the subject of possible motive power for the traction of canal boats or barges:





Fleet of Gasoline Motor Boats at Landing in Cincinnati.  
Steel Hulls. 15-Horse Power. 100-Ton Capacity.



Model Gasoline Motor Boat.

COMPARATIVE TABLE OF EFFICIENCY AND POWER OF ELECTRIC  
TRACTORS FOR BOATS.

NAMES OF THE APPARATUS	CANALS	DATE OF MEASURES	POWER IN KW.	MEAN EFFICIENCY
Gaillot tricycle on the bank . . .	Burgundy Canal	1895	6	0.40
Siemens tractor on track single rail	Finow Canal	1898	12	0.58
Gaillot tricycle on the bank . . .	Deule Canal	1900	10	0.43
Gerard quadricycle on the bank	Charleroi Canal	1899	7	0.50
Gerard tractor on two smooth rails	Charleroi Canal	1902	12	0.65
French tractor on two smooth rails	Deule and Scarpe	1904	20	0.675
Siemens tractor on two smooth rails	Teltow Canal	1904	15	0.65
Wood tractor on monorail . . .	Erie Canal	1904	70	0.64
Proportional adhesion tractor . . .	Erie Canal	1905	35	0.81

What future power will be used is, of course, a matter problematical, depending entirely upon the ingenuity of those who are constantly experimenting in such matters.

POSSIBILITIES OF BARGE OR SHIP CANAL.

In the survey made by Government engineers in 1894, the report was made that it is possible to enlarge the canal to a depth of ten feet. Mr. Lyman E. Cooley, of Chicago, one of the greatest engineers, if not the greatest, in the country upon such subjects, and the master spirit in the construction of the ship canal between Lake Michigan and the Mississippi River, has given as his opinion that it can be enlarged to a depth of sixteen feet.

The Government engineers referred to, although confined in their investigation to obtaining information with reference to a canal of seven feet in depth, were prevailed upon by the Miami and Erie Canal Association and the friends of the canal, to make a careful investigation of the possibility of a canal that would be practicable and at the same time advisable, of such dimensions as would enable it to meet the requirements of a modern waterway, and would be a good investment for the Government to make. These engineers found that a sufficient feed would be amply provided for such a canal. They advised the adoption of a canal having a trunk of eighty-five feet at the top water line and sixty feet in width at the bottom and ten feet in depth, with locks 20x200 feet, having twelve-foot lifts, which they say in their report "would carry vessels large



enough to be seaworthy on the lakes and as large as can probably ever be carried on the river." The Chief Engineer of the State, Mr. Charles E. Perkins, says that a barge canal of this size would permit the navigation of boats of minimum size for the lakes and of maximum size for the river. The Government engineers further say, "barges to be profitable and sufficiently seaworthy to navigate the Great Lakes should have a depth of not less than eight or nine feet, and for the navigation of such barges, a canal should have a depth of not less than ten feet, with accessories as stated. A canal of such depth if connected with a river channel permitting during the canal season a draft of eight or nine feet on the Ohio to the mouth of the Great Kanawha and Pittsburgh would enable full advantage to be taken of the greatly cheaper rates at which freight could be carried by waterway than by railway in the large interchange between the Ohio River and the lakes of heavy traffic to which waterways are especially adapted."

Some of the existing ship canals help us to know the depth of water required in a ship canal for its successful operation. The Sault Ste. Marie (ship) Canal (two miles long), connecting Lakes Superior and Huron, has a navigable depth of eighteen feet; Spurgeon Bay and Lake Michigan Canal (one and one-quarter miles long), from Green Bay to Lake Michigan, fifteen feet; Welland Canal (twenty-six and one-quarter miles long), in Canada, connecting Lakes Ontario and Erie, fourteen feet, and the Harlem River Ship Canal (eight miles long), connecting the Hudson River and Long Island Sound, fifteen feet. These and others are used by ships and barges of considerable tonnage and displacement, and over them an immense commerce is carried on. The Welland Canal (fourteen feet deep) is a throat for the commerce of the Great Lakes, the St. Lawrence River and the Atlantic Ocean.

The Harlem River Ship Canal (fifteen feet deep), though not completed, has a traffic over it exceeding that over the River Seine, France. Ships engaged in coast trade and other sea-going vessels pass through it.

In regard to the business that such a barge canal would accomplish, the Government engineers estimate that "about sixty per cent of its commerce would consist of ore, coal and lumber exchanged with river and lake, and forty per cent of the trade would be confined to local traffic of stone, coal, agricultural products and manufactured articles."

Within the past few years the State has made appropriations for permanent improvements on the Miami and Erie Canal, which are now nearly completed, and which will about double the carrying capacity of boats.

Mr. Perkins, in his report for the year ending November 15, 1901, says: "A modern barge canal of the size recommended compares with our canals of present size as a trunk-line railroad compares with a narrow-gauge railroad, and as the heavy steel rails and present railroad equipment compare with like rails and cars in vogue fifty years ago."

The Government engineers say concerning a deep waterway between Lake Erie and the Ohio River, **"The project is one of undoubted practicability at a cost not prohibitory, and if carried out the canal so built will form an important part of an inland system of navigation which, with Lake Erie as a commercial base of operation, will embrace the Great Lakes and the St. Lawrence, Mississippi and Ohio Rivers and the Atlantic seaboard."**

Senator Philander C. Knox said in a speech to the Chamber of Commerce of Pittsburg, in February, 1908, **"The modern canal of fifteen feet in depth is stated by experts to have a carrying capacity equal to that of fifteen double-tracked railways of equivalent length."**

#### SPEED OF VESSELS.

The rate of speed on the lakes averages six miles an hour; on canals four miles an hour against the current, and six miles with the current; slack water navigation six miles an hour; Ohio River, up, five miles an hour; Ohio River, down, seven miles an hour. The estimated time of the passage of a barge from Cincinnati to the mouth of the Detroit River, by canal, slack water and lake (about 225 miles), is 80.9 hours, in which 14.4 hours would be consumed in lockage.

James J. Hill, probably the greatest railroad authority in the United States, says that freight cars make exceptional speed if they average thirty miles per day, but that in 1907 they dropped to twenty-three to twenty-five miles per day.

Amusing, but instructive, instances are given of loss of business by railroads from Cincinnati to Dayton and intermediate points because of the more expeditious transportation of freight by canal.

## WATERWAY FREIGHT RATES COMPARED WITH RAILROAD RATES.

The canals have unquestionably been an important factor in regulating and fixing transportation rates by rail. The freight rate of the old Erie Canal of New York is given as 1.2 mills per ton per mile, which is about the average canal rate. While, on the Great Lakes, the cheapest rate is .37 mills per ton per mile—the average lake rate being .80 mills per ton per mile. It is a rule in transportation that railroad rates are always lower at points on navigable waterways than at points of the same and even greater distances not on navigable waterways.

The rate of conveying ordinary freight on our rivers can not be definitely ascertained, but from the best available information it is about 2.5 mills per ton per mile, or about one-third the average rail rate. The following is from a speech of Hon. J. E. Ransdell, of Louisiana, in the House of Representatives on March 1st of this year:

"In order to get some idea of this lake-water rate of .80 of one mill, let us compare it with the average rail rate of the entire Union for the fiscal year ending June 30, 1907, which, according to the Interstate Commerce Commission, was 7.59 mills per ton per mile—just 9.48 times the water rate—say nine and one-half times as much by rail as by water. Bear in mind, too, that these are official figures."

The Government engineers, in their report January 20, 1896, say: "The history of the Erie Canal shows by comparison of summer and winter rail rates on lines paralleling it that it has effected a reduction in railroad rates during the past twenty-five years of not less than fifty per cent, and it has been estimated that 'the amount saved in transportation of grain alone to the State of New York by the Erie Canal during the last thirty years is at least \$200,000,000.'" And they further say, as regards the relation of the rail to the canal in Ohio: "There is no reason to suppose that the beneficial influence of free navigable waterways \* \* \* will not be as great in the future as it has ever been," and "It is a recognized fact among the best railroad authorities that free water competition, instead of being a detriment to the railroads, is a benefit to them. The classes of freight that can be carried most economically by water are those that are carried with least profit by the railroads. The two systems of transportation are natural complements of each other, and make possible a division of traffic which is of advantage to both. That this argu-





Ohio—Cincinnati, Miami and Erie Canal Scene.



Netherlands—Rotterdam Canal Scene.

ment rests on a sound basis is evidenced by the fact that in our own country the most prosperous railroads are those that parallel the great waterways."

## IMPROVEMENT OF CANAL AND ADJACENT STREETS IN CINCINNATI.

Because of statements which have been made from time to time, that the Miami and Erie Canal in Cincinnati is an open sewer, an "eyesore" and a "nuisance," an inspection by citizens was made within the past few weeks. Careful observation was made, photographs were taken and notes were made of whatever in the canal, on its banks, or on the adjacent streets and sidewalks was objectionable or unlawful. The information so gathered was referred to the State Board of Public Works with a request that it take up with the authorities of Cincinnati some plan of co-operation to the end that the canal and the adjacent streets and sidewalks might be made unobjectionable, and that, further, there might be general improvement of the canal and the streets and sidewalks, and the Board unanimously adopted a resolution offering co-operation in this behalf. The Board of Public Service of the city of Cincinnati was recently addressed upon the subject and a reference was made to the City Engineer to ascertain what the facts are touching the condition of the streets and sidewalks adjacent to the canal. There is no reason why Cincinnati should not treat the canal in the same way that such canals are treated in Germany, France, Holland, Norway and Sweden and elsewhere, in which countries where the canals pass through cities, public buildings and residences are located upon them and trees and foliage adorn the banks.

## THE "ELECTRIC MULE."

It may be of interest to give a brief history of the Miami and Erie Canal Transportation Company—the "electric mule."

April 25, 1898 — Act of General Assembly authorizing the Board of Public Works to enter into a contract for the purpose of making experiments to demonstrate the feasibility of electricity as a motive power for the propulsion of boats and other craft.

May 28, 1900 — Contract or lease between the Board of Public Works and Thomas N. Fordyce to make such experiments.





Ohio—Cincinnati, Miami and Erie Canal Scene.



Netherlands—Alkmaar, Canal Scene. Belfry Tower.



March 28, 1900 — Above contract approved by the Governor and Attorney-General.

June 12, 1900 — Report by Fordyce to the Board of Public Works of experiments.

June 12, 1900 — Board of Public Works by resolution approved experiments.

February 16, 1901 — The Miami and Erie Canal Transportation Company was incorporated; principle place of business at Cincinnati; organized for the purpose of owning, operating and propelling boats and other craft on the Miami and Erie Canal between the southern terminus of the canal in Cincinnati, and the northerly terminus in Toledo; capital stock, \$10,000; incorporators, Thomas N. Fordyce, Daniel J. Ryan, Robert F. Wirthwine, Eugene L. Buss and Miles T. Watts.

March 26, 1901 — Lease by the Board of Public Works to Thomas N. Fordyce and his assigns for permission to construct and operate along the Miami and Erie Canal necessary facilities for propelling boats, and *boats only*, on the Miami and Erie Canal by traction power along bermebank and tow-path. Lease for thirty years after first operation of boats.

Fordyce and assigns given two and one-half years in which to construct a plant from the city of Cincinnati to the city of Dayton. If not constructed in that time, "then this contract to be absolutely null and void; provided, however, that if the said Thomas N. Fordyce and his assigns shall be prevented from complying with this contract by any legal proceedings entered into in good faith, he shall not be charged with negligence or failure to comply herewith."

Fordyce and assigns given time to complete plant along entire length of the Miami and Erie Canal within four years. If not done contract shall be forfeited.

Fordyce and assigns not to use plant for railroad transportation purposes.

April 10, 1901 — Fordyce sold and assigned his lease and rights to Wm. H. Lamprecht. Lamprecht acted as trustee for Cleveland parties. The consideration of sale of Fordyce to Lamprecht was, Fordyce to receive \$75,000 in cash and in addition to that his associates to receive the sum of \$50,000, and his associates to receive twenty-five per cent of the capital stock of any corporation to be organized.

May 3, 1901 — Lamprecht assigned to the Miami and Erie Canal Transportation Company all rights granted Fordyce between the terminus at Cincinnati and a point in the city

of Dayton; consideration, company to deliver \$2,990,000 worth of stock fully paid up to the Cleveland syndicate, of which Lamprecht was trustee, and to issue to Lamprecht and the syndicate \$240,000 worth of bonds of the company out of a total authorized issue of such bonds of \$2,000,000. Bonds to be secured by first mortgage to the Cincinnati Trust Company as trustee, and Lamprecht, trustee, and the syndicate to receive in addition the sum of \$140,000 in cash. This contract was executed. Subsequently it began construction of its "plant," placing on the towpath of the canal a standard gauge railroad track of ordinary railroad ties and seventy-pound "T" rails, erecting poles and apparatus for ordinary electric trolley railroad, which "plant" was constructed to a point several miles this side of Dayton.

October 23, 1902 — Board of Directors of the Miami and Erie Canal Transportation Company meeting at Cleveland. President and Secretary authorized to execute contract with the Traction Terminal Company.

October 23, 1902 — Traction Terminal Company incorporated. Principal place of business Cincinnati. Capital stock, \$100,000. Purpose, constructing and operating electric street railways and acquiring property, etc., for accomodation of street railways and railroads and for accomodation of the systems of other transportation and public service corporations in the City of Cincinnati. The incorporators were George H. Warrington, J. B. Foraker, Jr., Randolph Matthews, Frank N. Wilcox and Dennis J. Downing. This company is controlled by the Cincinnati Traction Company interests.

November 30, 1902 — Stockholders of the Miami and Erie Canal Transportation Company met at Cincinnati and ratified the action of the Board of Directors authorizing the contract with the Traction Terminal Company. At this meeting a vote was taken, Richardson voted 7,500 shares; 29,880 shares of capital stock were voted, the total outstanding stock then being 30,000 shares.

November —, 1902 — Contract between the Miami and Erie Canal Transportation Company and the Traction Terminal Company, giving an option to the Traction Terminal Company of all rights and property of the "electric mule," for ten years, at price to be agreed upon.

Consideration of option, \$50.00 a year.

On the twenty-ninth day of July, 1904, Otto Miller testified before Referee C. W. Fuller, in Cleveland, that, pursuant

to an agreement between Mandelbaum, of Cleveland, and Schoepf, of Cincinnati, he brought to the office of Schoepf, in Cincinnati, \$300,000 worth of bonds and \$300,000 worth of stock of the Miami and Erie Canal Transportation Company and delivered them in Mr. Schoepf's office and received a check therefor for \$270,000, which he (Miller) deposited in the bank of the Cincinnati Trust Company to the credit of the Miami and Erie Canal Transportation Company.

June 20, 1903, Norman G. Kenan, President of the Miami and Erie Canal Transportation Company, instructed the American Audit Company, of Cincinnati, to make an examination of the records and affairs of that company, which company made a report, as of July 2, 1903. In this report the Audit Company says among other things: "In substance your auditors are of the opinion that the records were kept either by a novice or a knave, and if the latter, no clue is left upon which to hinge accusation, more than that of withholding full details from the records, which may or may not have been by official direction. Several requests were made by your auditors to obtain possession of the minutes of the directors' meeting to verify the authorization of the many transactions of important affairs, as the record of the stock ledger showing share holders and holdings. No sight, however, was had of such records." The Audit Company reported that the only money from sale of stock was \$15,000; \$5,000 of which was for "premium on 100 shares;" that "29,900 shares (30,000 shares issued) were transferred to subscribers for right of way;" and that "said subscribers were to donate \$1,766,000 par value of stock for promoting the sale of bonds. Just who these subscribers were could nowhere in the research be disclosed;" that "the \$1,135,400 net received from the sale of bonds constituted practically all the working capital, and out of that was paid \$394,717.06 for items of promotion;" that "the total amount of cash received from all sources was \$1,672,312.42, and as but \$2,807.21 was on hand July 2, 1903, it appears that \$1,669,505.21 is the net amount that was expended for all purposes." (It will be borne in mind that the total bond issue was \$2,000,000.)

As to construction the Audit Company says that "Not one seemed to know what materials had been ordered, as everybody, even down to the clerks took the liberty of expending money and ordering goods apparently at random." The Audit Company further says, "The Southern Ohio Traction Company apparently usurped the privilege of taking material belonging



to your company without previous permission, and paying for it on their own account, and as no record was kept, and as bills were rendered only as the chief engineer or his assistant happened to remember incidents of the kind, no assurance can be had that the Southern Ohio Traction Company did not get far more material than was ever reported or paid for."

A learned attorney, Mr. James E. Robinson, of Cincinnati, after investigation of the matters of the Miami and Erie Canal Transportation Company, and examining the above report, stated that it appeared to him from a careful examination that "The Miami and Erie Canal Transportation Company is (February 24, 1904) not only insolvent at this time, but as a matter of fact, has been insolvent from the day of its organization."

January 2, 1903, Charles C. Richardson and W. Kesley Schoepf were appointed receivers by the Superior Court of Cincinnati.

December 23, 1905, Charles C. Richardson and W. C. Shepherd, of Hamilton, were appointed by the Common Pleas Court and are now receivers.

The "electric mule" began by purchasing nearly all of the canal boats actively engaged in navigating the canal south of Dayton. It pretended to be honestly engaged in the navigation of canal boats by electric traction or propulsion. Notwithstanding it was prohibited by its franchise from doing a railroad transportation business, it stealthily attempted to transport freight on cars on its track until admonished by the Attorney-General. Balked in this, it attempted to secure legislative relief, which, after the most hotly contested legislative fight in the history of the State, ended in defeat. It has done no business for years, but maintains its tracks upon the canal, except where it has been necessary to sell rails to pay costs and fees, which tracks are a constant hindrance to mules and horses towing canal boats, and are used as a means to prevent the State from doing much-needed dredging, the receivers having arrested for contempt the contractors engaged in dredging, because they have thrown dredgings on the tracks of the "electric mule," and this, notwithstanding it is the duty of the receivers of the "electric mule," under the Fordyce lease, to provide receptacles and remove the dredgings.

The property of the "electric mule" has so depreciated that the bondholders will receive little or nothing. It must be said to the credit of the State Board of Public Works that they have been, for nearly two years, supplied with funds for, and are anx-



“Electric Mule”—1902.



“Electric Mule”—1909.

ious to complete, the dredging of the canal from Cincinnati to Dayton, but have been, where the tracks of the "electric mule" are on the canal, so far unable to complete this much-desired improvement.

Without fear of contradiction, your Committee reports that in its judgment the existence and conduct of the Miami and Erie Canal Transportation Company — the "electric mule" — has been a disgrace to the State of Ohio, that its original aim and object, which is now being continued in another form, was to so utterly destroy or cripple the Miami and Erie Canal as that it might be used by those connected and associated with the Miami and Erie Canal Transportation Company for railroad purposes pure and simple.

But public sentiment is alert to all the machinations of the enterprising financiers who would absorb any part of this canal for their selfish uses, and their plans will come to naught.

Every abandonment of the canal has been ultimately for the benefit of railroads, the most notable examples of which are the Eggleston Avenue terminals in Cincinnati, which were ceded to the City of Cincinnati for boulevard purposes, but were almost immediately afterwards absorbed by the Pennsylvania Railroad Company for its terminal purposes, and the absorption of the terminals of the Ohio Canal in Cleveland by the Baltimore and Ohio Railroad.

The lease to the Pennsylvania Railway Company expires October 24, 1910, and the lease contains no privilege of renewal.

#### TRACTION COMPANY'S PLAN TO ABSORB CANAL IN CINCINNATI.

Little need be said touching the present plan of the "electric mule"—Traction Terminal Company-Cincinnati Traction Company-C., D. & T. Traction Company interests to abandon the terminals of the canal in Cincinnati. It is on its face a plan to destroy these terminals for canal purposes and substitute in their place a railroad, and it must be apparent that no corporation, even though organized by saints, could acquire what the companies of Mr. Schoepf and his associates are now seeking, without bargaining with the "electric mule" and the Traction Terminal Company, because of the unexpired lease of the "electric mule" and the option of the Traction Terminal Company, which has some years to run. The boasted "good faith" of the promoters of this scheme would be received with more credence



by the people if, instead of offering \$25,000 to the State for a survey as to the practicability and feasibility of converting the canal into a barge or ship canal, *after* it had taken the most valuable part of the canal — the Cincinnati Terminal — for railroad purposes, this offer had been made for a survey *before* the abandonment of the canal, for if the abandonment is *first* accomplished, the survey would be not only futile, but absurd. The bill proposed for this abandonment is full of weaknesses and covert designs which become more numerous as the bill is studied. Again, while the bill pretends to admit all interurban roads on the same basis, it provides that no such road may use the tracks laid upon the abandoned canal except such road as has sixteen miles of track constructed, and is in actual operation. The only road that could come in upon these terms is the C., D. & T. Traction Company, which is controlled by the same interests which were interested in the "electric mule," which owns the Cincinnati Traction Company, and which controls the Traction Terminal Company.

THE GOVERNMENT ENGINEERS SAY, AS REGARDS THE TERMINAL PROPOSITION IN CINCINNATI: "THE OLD CANAL SHOULD NOT BE ABANDONED, BUT RETAINED FOR LOCAL TRADE."

Major M. D. Burke, one of the foremost engineers in the Middle West, read a paper to the Engineers' Club of Cincinnati, on February 15, 1894, in which he said, after an able discussion on the subject touching the Miami and Erie Canal: "Deprived of its terminals the residue of the canal would be of little use."

While the history of the Miami and Erie Canal which we have given, and the great benefits, direct and indirect, derived from its construction and operation, and future possibilities founded upon scientific information, and its value as an asset (the chief asset) of the State of Ohio have been shown, and notwithstanding the fact that there is practically a unanimous opinion in the fifteen counties through which the canal passes, that its enlargement would be of inestimable commercial value, there are, nevertheless, found, here and there, persons who take a narrow view of the subject, and are constantly advocating the abandonment of all or a part of its most valuable portion — its terminals — particularly in the City of Cincinnati, but those who advocate such abandonment are they who either from selfish motives or from lack of information would cripple, if not destroy, these terminals, and are not content to await

the scientific opinion of engineers based upon careful and minute survey and investigation.

We recommend to the City Club, and advise citizens generally, that no abandonment or impairment of any part of the canal shall be permitted until a survey and report, by competent engineers, shall have been made, and if in their report the engineers shall recommend the diversion of the route of the canal, or its change of construction in any manner, we, as laymen, with no pretensions to professional knowledge, whether we be for canal abandonment or against canal abandonment, should gracefully yield to the judgment of superior knowledge.

We further recommend that your Committee on Waterways be authorized to urge upon the National Waterways Commission that, in their examinations of the waterways of the country, they include in their investigation an examination of the Miami and Erie Canal, and that your Committee be authorized to advise the Commission that the City Club will render such assistance to it in this behalf as may be desired.

If, notwithstanding what the Government is doing, and considering, in the improvement of waterways, and what is shown by experience to be the benefits to commerce by waterways, and how the improvement of the Ohio River, and the enlargement of the Miami and Erie Canal will be a great aid to business locally and generally, there still be any so skeptical as to the feasibility and practicability of any of these projects of waterway improvement, that he counts the advocates of such plans dreamers, he must remember that a dreamer discovered America, a dreamer found power in steam, and a dreamer developed electricity, and that after the dreamers were dead mankind has builded upon the dreamers' dreams, and the skeptic must needs confess that the mighty achievements which have made for the uplift of humanity and have wrought the wonders of the world are, after all, the ripened fruits of the dreamers' dreams.

Respectfully submitted,

H. R. PROBASCO,  
*Chairman.*

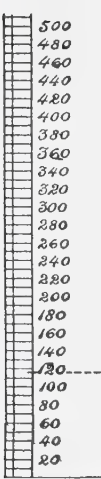
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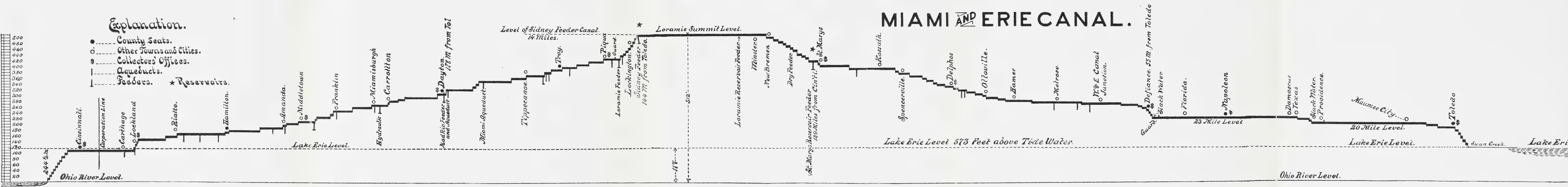
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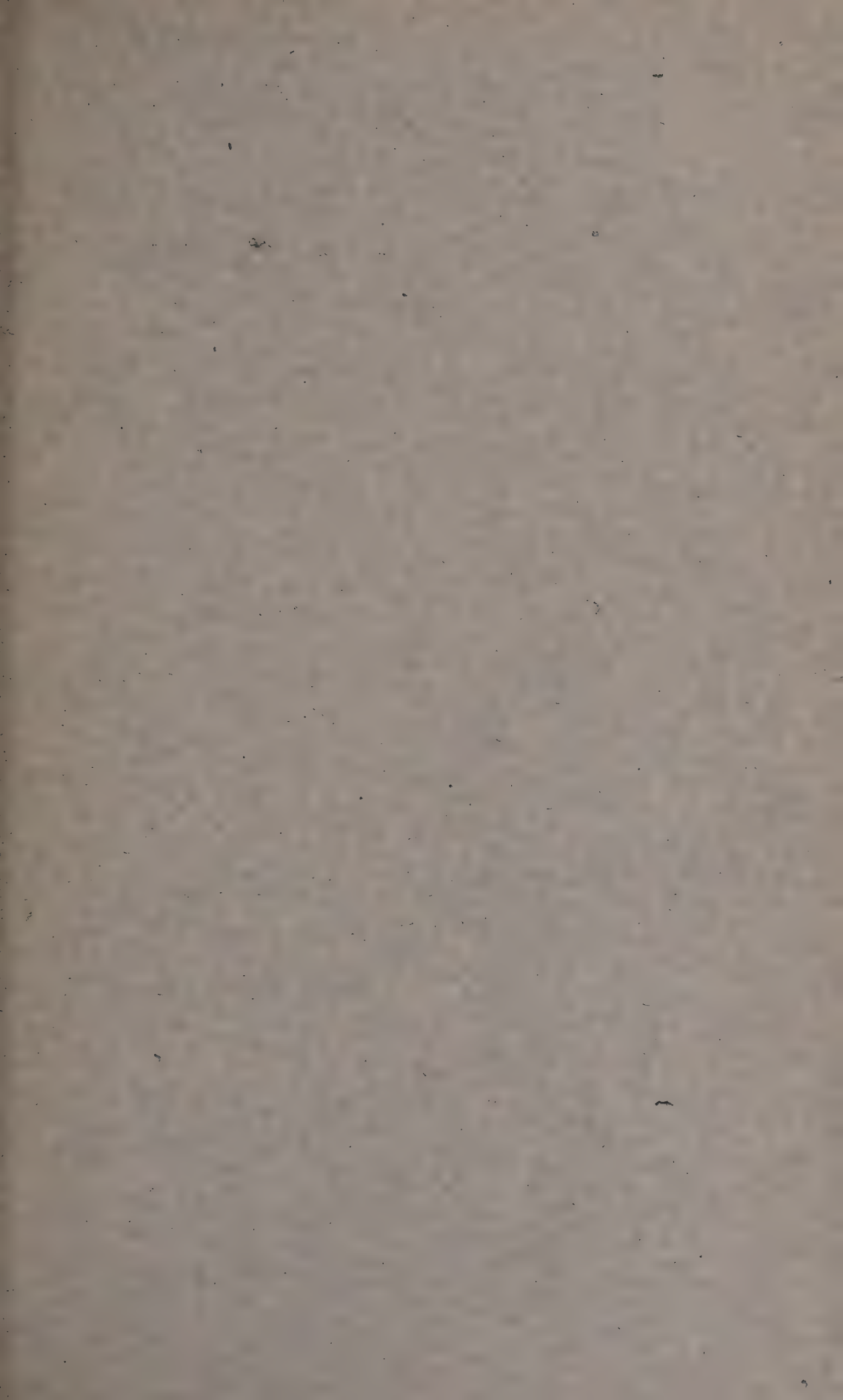
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